



Malaria Information Sheet

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SG

What is Malaria?

Malaria is a life-threatening parasitic (genus *Plasmodium*) disease transmitted by mosquitoes (genus *Anopheles*). Today approximately 40% of the world's population, mostly those living in the world's poorest countries, are at risk of malaria. Malaria is found throughout the tropical and sub-tropical regions of the world and causes more than 300 million acute illnesses and at least one million deaths annually.

Why are we concerned with Malaria as a bioweapon?

Currently it is not weaponized but could serve as an incapacitating agent. Further, Malaria parasites are developing resistance to one drug after another and many insecticides are no longer useful against mosquitoes transmitting the disease. Years of vaccine research have produced few hopeful candidates and although scientists are redoubling the search, an effective vaccine is at best years away. Malaria has been a significant factor in virtually all of the military campaigns involving the United States. In both World War II and the Vietnam War, more personnel time was lost due to malaria than to bullets.

Does this disease occur naturally?

Yes, malaria occurs in over 100 countries and territories. More than 40% of the people in the world are at risk. Large areas of Central and South America, Hispaniola (Haiti and the Dominican Republic), Africa, the Indian subcontinent, Southeast Asia, the Middle East, and Oceania are considered malaria-risk areas (an area of the world that has malaria).

Are there different forms of this disease?

Yes. There are four species of *Plasmodium* that cause malaria: *P. malariae*, *P. ovale*, *P. vivax*, and *P. falciparum*. *P. vivax* and *P. falciparum* are the most common. *P. falciparum* is the most deadly type of malaria infection and *P. vivax* is the most geographically widespread. *Plasmodium falciparum* malaria is most common in Africa, south of the Sahara.

Is the disease seasonal in its occurrence? Somewhat, malaria generally occurs in areas where environmental conditions allow parasite multiplication in mosquitoes. Thus, malaria is usually restricted to tropical and subtropical areas and altitudes below 1,500 m.

How does it spread? Who is at risk?

Malaria is spread by infected mosquitoes, who typically feed at dusk or dawn. When an infected mosquito bites a person, the parasites are transmitted from the mosquito to the person's blood. Typically, within a 9 -14 days the human will exhibit symptoms of malaria. Uninfected mosquitoes become infected when they feed on infected humans. A week or more after feeding on an infected person, the mosquito can infect another person.

Travel to known infectious geographical areas poses a risk of contracting malaria. Travelers can reduce the risk by proper preventive measures such as mosquito nets, minimizing mosquito bites by wearing repellents, wearing long sleeved shirts and long pants.

What are the symptoms of Malaria?

The symptoms of uncomplicated malaria can be rather non-specific and the diagnosis can be missed if health providers are not alert to the possibility of this disease. Since untreated malaria can progress to severe forms that may be rapidly (<24 hours) fatal, malaria should always be considered in patients who have a history of exposure.

The most frequent symptoms include fever and chills, which can be accompanied by headache, muscle aches, joint aches, weakness, vomiting, and diarrhea.

How soon do infected people get sick?

Malaria symptoms appear about 9 to 14 days after the infectious mosquito bite, although a person may feel ill as early as 8 days or up to 1 year later. Two kinds of malaria, *P. vivax* and *P. ovale*, can relapse; some parasites can

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rest in the liver for several months up to 4 years after a person is bitten by an infected mosquito. When these parasites come out of hibernation and begin invading red blood cells, the person will become sick.

Is a vaccine available to prevent malaria?

No approved vaccine is available at this time. However, the incidence of infection can be greatly reduced with effective prophylaxis regimen based on your travel itinerary and medical history.

Can Malaria be treated?

Malaria can be cured with prescription drugs (mefloquine, doxycycline, malarone, chloroquine, hydroxychloroquine). The type of drugs and length of treatment depend on which kind of malaria is diagnosed, where the patient was infected, the age of the patient, and how severely ill the patient was at start of treatment.

Women living or traveling to malarious area are more likely to develop acute *P. falciparum* when they become pregnant. Pregnant women should avoid travel to endemic areas if possible. If travel is required they should contact their health care provider for anti-malaria prophylaxis.

Where will the medications to treat infected individuals come from?

Regionally dependent resources based on national stockpiles when they become available.

Are there any contraindications to antibiotic therapy, other treatments?

The above named prescription drugs have specific contraindications and side effects and should only be taken under the supervision of health care provider.

Are there ways to test for malaria in the environment?

No field expedient methods are available for testing. Malaria is diagnosed by microscope, looking for the parasites in a drop of blood. Samples must be sent to laboratory for testing.

What should someone do if they suspect they or others have been exposed to malaria?

Contact your health care provider if you have concerns about your health or if you or your family members develop symptoms such as headache, fever, chills, cough, and/or diarrhea. Be sure to inform your health care provider if you have traveled to high-risk areas within the past year.

What can I do to reduce the risk of getting Malaria or giving it to someone else?

Prevent mosquito and other insect bites. Use DEET insect repellent on exposed skin and flying insect spray in the room where you sleep. Wear long pants and long-sleeved shirts, especially from dusk to dawn as this is the time mosquitoes that spread malaria bite. Sleep under a mosquito bednet that has been dipped in permethrin insecticide if you are not living in screened or air-conditioned housing.

If traveling: visit your health care provider 4-6 weeks before foreign travel for any necessary vaccinations and a prescription for an antimalarial drug. Take your antimalarial drug exactly on schedule without missing doses.

Reference:

www.cdc.gov/travel
www.dpd.cdc.gov/

www.who.int
www.rbm.who.int

<http://chppm-www.apgea.army.mil>
USAF AFIOH/SD